

Q.C. Procedure I: Analytical Balance Calibration

I. Introduction:

Balances in the Drug Laboratory are to be calibrated every 30 days and professionally cleaned and calibrated every year by an outside technician. There are two balances per bench (Benches 1A, 1B, 2A, 2B), the FX-2000 and the Explorer (analytical balance). For the FX-2000 a standard mass of 200g is used for calibration. To check for accuracy before and after the balances are calibrated, a series of known masses (1.0g, 2.0g, 5.0g, 10.0g, 20.0g, 50.0g) are used. These masses are from the Permas metric weights, Class S, distributed by Fisher Scientific. When not in use, the masses must be stored in a secure, cool and dry place. Handle all weights with non-scratching forceps.

II. Procedure

A.) Optimal Conditions for Weighing:

1. Make sure balance is level and on a solid surface.
2. Optimal room temperature is about 28°C/68°F with a relative humidity of about 50%.
3. Keep laboratory and immediate area around balance clean and dry.
4. Corners of a room are best due to fewer vibrations.
5. Balances should not be installed near heaters, air conditioners, or in direct sunlight.
6. Any equipment containing magnets should be kept away from balances.
7. Use a breeze break to keep out drafts.
8. Ensure a stable AC power supply.
9. Use a clean damp cloth to clean, do not use solvents.
10. Warm up balance before using or leave on standby overnight.

B.) Quality Control

1. For each of the balances, weigh each of the known masses (1.0g, 2.0g, 5.0g, 10.g, 20.0g, 50.0g) and record results in a QC notebook.
2. The margin of error for the FX-2000 is +/- 0.02g and +/- 0.0002g for the Explorer. Therefore, if the results fall outside these margins, the balances must be calibrated and masses reweighed.

C.) Calibration

1. FX-2000 Balance

- a.) Slide rear calibration switch up to “ON” position
- b.) When “CAL O” is displayed, press RE-ZERO.
- c.) After a pause, “CAL F” will be displayed and the 200g mass can be placed on the pan.
- d.) Press RE-ZERO and after another pause, “CAL END” will be displayed.
- e.) Slide rear calibration switch down, the calibration is over.

2. Explorer Balance

- a.) Press SETUP, “CAL” should be displayed.
- b.) Press ENTER three times until “INCAL” is displayed on the screen.
- c.) Allow balance to calibrate itself, it should only take a minute or two, during which time you should hear the masses moving.
- d.) When the calibration is complete, the balance should return automatically to the “WEIGH” mode.

III. Results:

- A.) All results must be recorded in appropriate QC logbook assigned for all balances on each working lab bench.
- B.) This calibration process may be repeated up to 6 times, recoding each result. If the balance(s) still do not meet requirements, the balance(s) must be serviced and/or repaired.
- C.) Records must be kept of all service dates, findings, and repairs in a bound logbook for each balance.